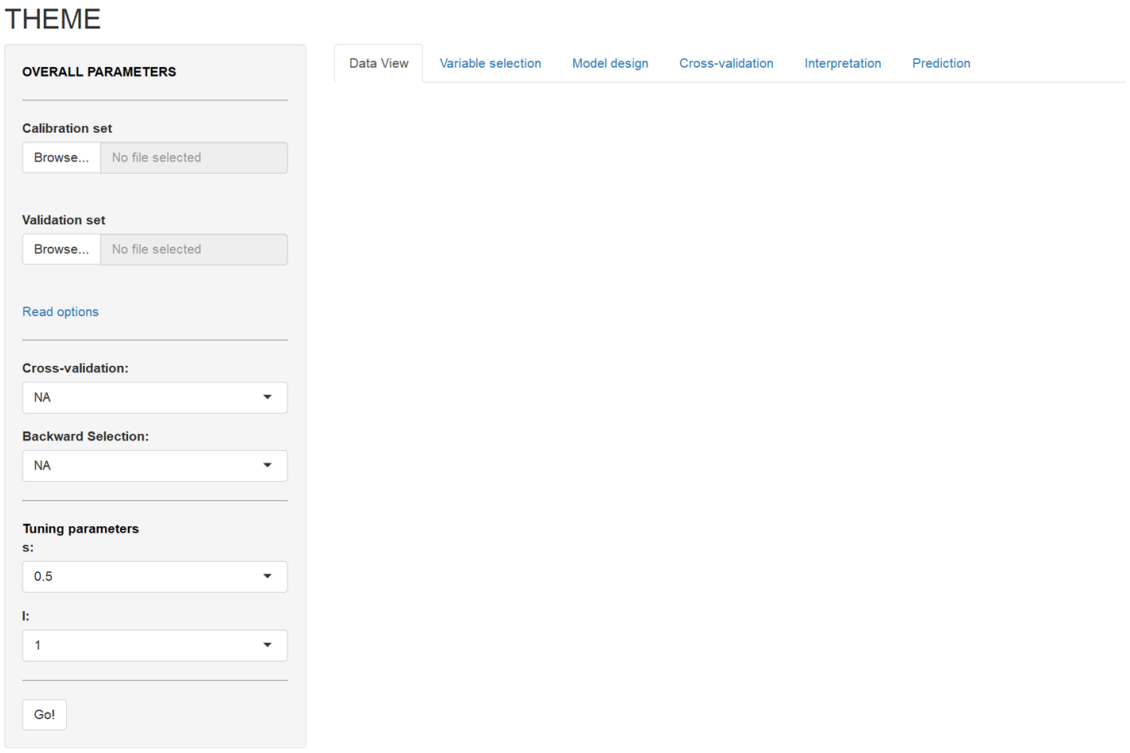
THEME UI

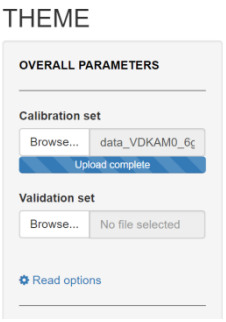
THEME UI is a user interface developed to handle THEME easily. The main window consists of:

1- A control panel entitled “OVERALL PARAMETERS” composed of three parts for selecting the data and the main options;
2- A menu bar at the top of the application with 6 tabs to access additional options or data visualization.

Control Panel **Menu Bar**

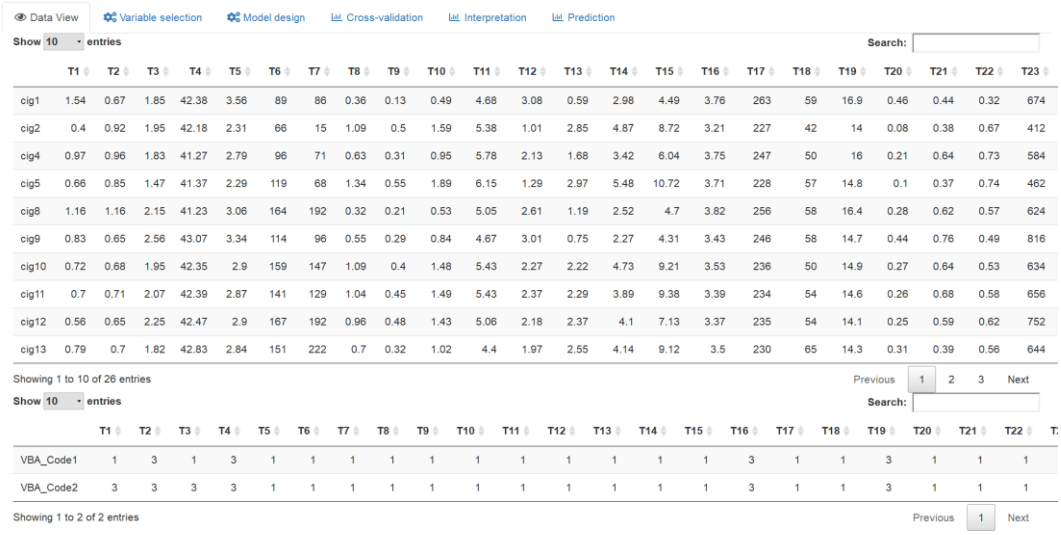


Step 1: Overall parameters



First click on "**Browse**" in the block 1 of the panel control, and select a datafile. The data file must be in text format (txt or csv). If needed, you can also add a validation set. According to your file format (separators, decimals) you can adjust the “Read options” by clicking on the blue link.

When the calibration set is loaded, the data is displayed in the window corresponding to the “**Data view**” tab. Two tables are presented, one corresponding to the data and one corresponding to the lines with a name starting with “VBA_”. VBA means Variable-to-Block Allocation and allow the variables to be quickly allocated to the different Themes (see the “Variable selection” tab).


Data View | Variable selection | Model design | Cross-validation | Interpretation | Prediction

Show 10 entries — Search:

	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23
cig1	1.54	0.67	1.85	42.38	3.56	89	86	0.36	0.13	0.49	4.68	3.08	0.59	2.98	4.49	3.76	263	59	16.9	0.46	0.44	0.32	674
cig2	0.4	0.92	1.95	42.18	2.31	66	15	1.09	0.5	1.59	5.38	1.01	2.85	4.87	8.72	3.21	227	42	14	0.08	0.38	0.67	412
cig4	0.97	0.96	1.83	41.27	2.79	96	71	0.63	0.31	0.95	5.78	2.13	1.68	3.42	6.04	3.75	247	50	16	0.21	0.64	0.73	584
cig5	0.66	0.85	1.47	41.37	2.29	119	68	1.34	0.55	1.89	6.15	1.29	2.97	5.48	10.72	3.71	228	57	14.8	0.1	0.37	0.74	462
cig8	1.16	1.16	2.15	41.23	3.06	164	192	0.32	0.21	0.53	5.05	2.61	1.19	2.52	4.7	3.82	256	58	16.4	0.28	0.62	0.57	624
cig9	0.83	0.65	2.56	43.07	3.34	114	96	0.55	0.29	0.84	4.67	3.01	0.75	2.27	4.31	3.43	246	58	14.7	0.44	0.76	0.49	816
cig10	0.72	0.68	1.95	42.35	2.9	159	147	1.09	0.4	1.48	5.43	2.27	2.22	4.73	9.21	3.53	236	50	14.9	0.27	0.64	0.53	634
cig11	0.7	0.71	2.07	42.39	2.87	141	129	1.04	0.45	1.49	5.43	2.37	2.29	3.89	9.38	3.39	234	54	14.6	0.26	0.68	0.58	656
cig12	0.56	0.65	2.25	42.47	2.9	167	192	0.96	0.48	1.43	5.06	2.18	2.37	4.1	7.13	3.37	235	54	14.1	0.25	0.59	0.62	752
cig13	0.79	0.7	1.82	42.83	2.84	151	222	0.7	0.32	1.02	4.4	1.97	2.55	4.14	9.12	3.5	230	65	14.3	0.31	0.39	0.56	644

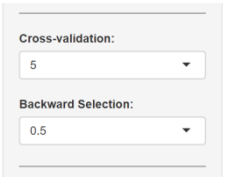
Showing 1 to 10 of 26 entries — Previous 1 2 3 Next

Show 10 entries — Search:

	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T
VBA_Code1	1	3	1	3	1	1	1	1	1	1	1	1	1	1	1	3	1	1	3	1	1	1	
VBA_Code2	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	3	1	1	3	1	1	1	

Showing 1 to 2 of 2 entries — Previous 1 Next

The second block has been designed to tune cross-validation and backward component selection. The default NA means that no cross-validation and no backward component selection will be performed.

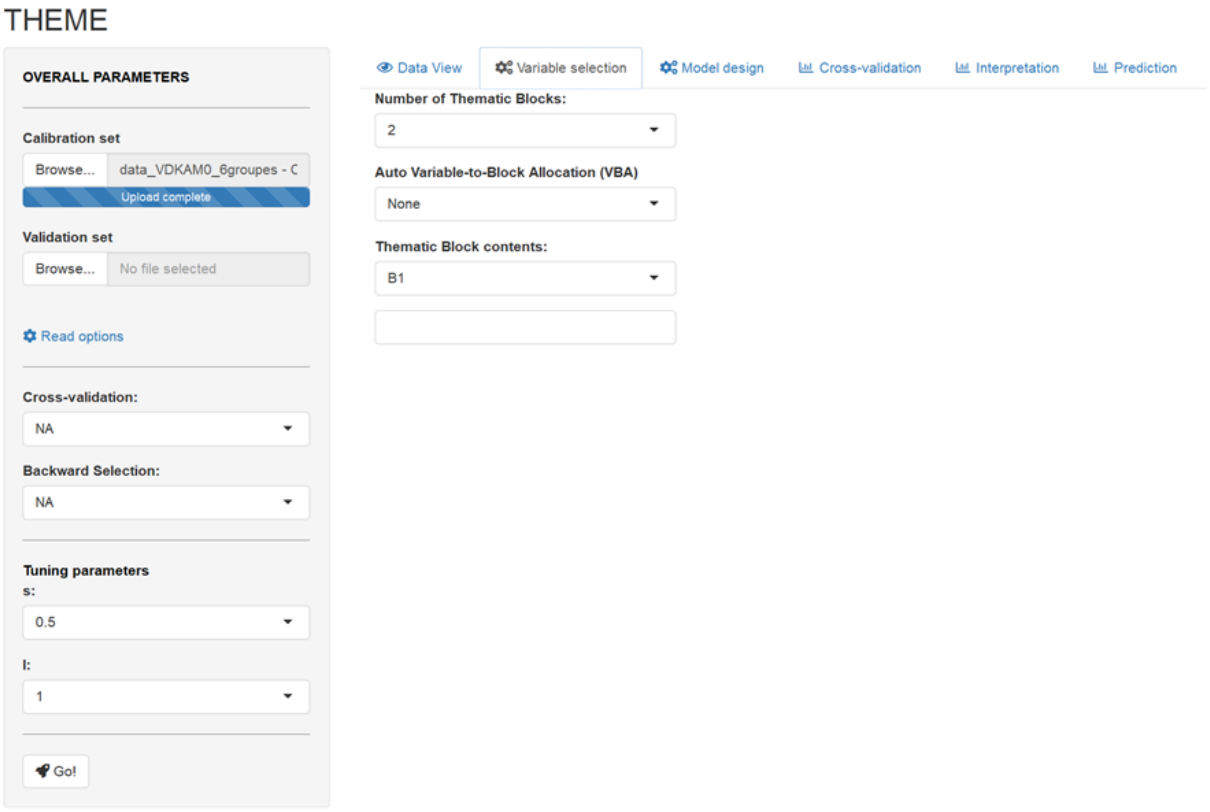


- To perform the leave-k-out cross validation, change NA to k with k corresponding to the number of units to be kept for each test-sample.
- To activate the backward component selection, change NA to a number between 0 and 1 corresponding to a balance parameter. Backward selection produces a decreasing sequence of models, each associated with a vector of component-numbers in blocks

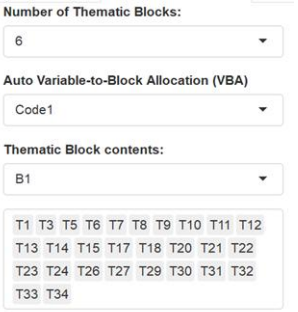
The third block corresponds to the advanced tuning parameters s and l.

Step 2: Variable Selection

Click on the "**Variable Selection**" tab.

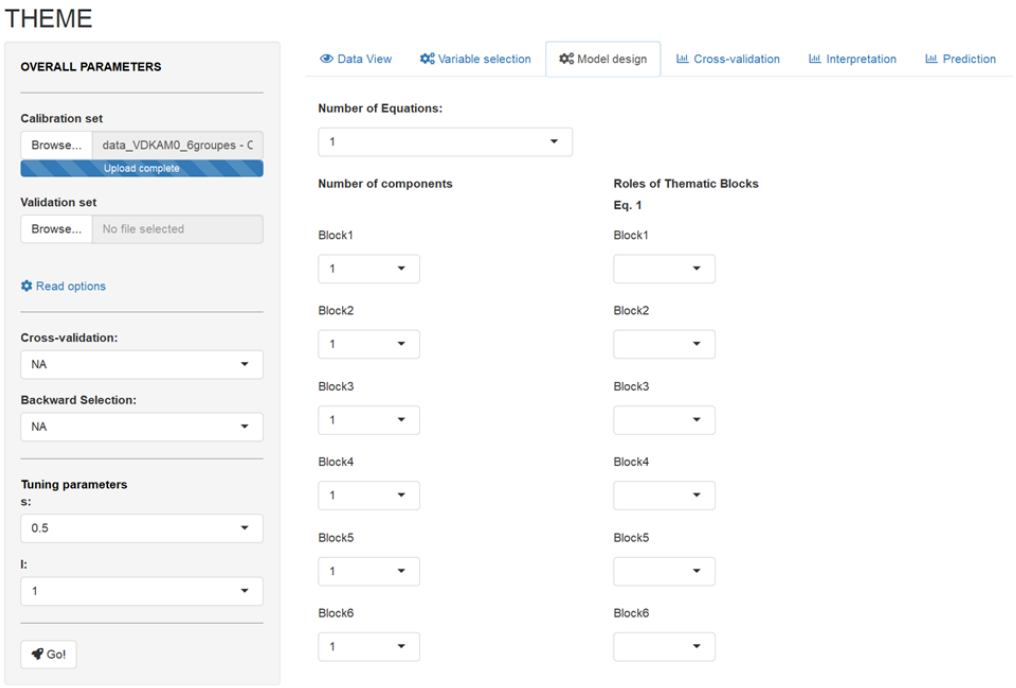


This window allows the user to choose the total number of thematic blocks and to allocate the variables to each theme. If the data file contains rows starting with "VBA_", then the user can select them in the Auto Variable-to-Block Allocation list menu in order to allocate the variables in each theme automatically. The "VBA_" row must contain, for each variable, a number from 1 to k (total number of thematic blocks) corresponding to the theme the variable must be allocated to. If NA is mentioned then the variable is allocated to no theme.



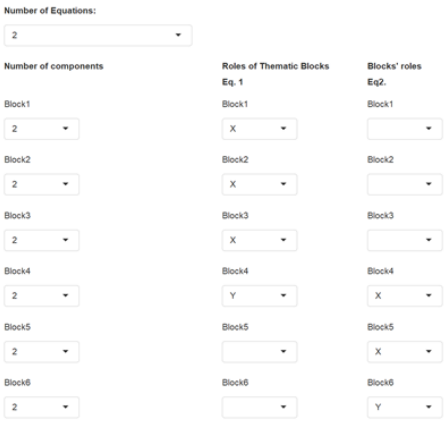
Step 3: Model Design

Click on the "**Model Design**" tab



This window allows the user to:

- choose the number of equations,
- attribute themes to each equation,
- define the role of each theme (dependant or explanatory),
- choose the number of components per theme.



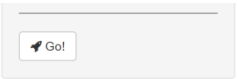
Here an example with two equations:

- eq1: themes X1, X2 and X3 explain X4
- eq2: themes X4 and X5 explain X6

The user has selected two components per theme.

Step 4: GO

After completing the control panel and the first three tabs of the menu bar, it is time to launch the calculations by clicking on the "**Go!**" button at the bottom of the control panel.



Pushing the "**Go!**" button displays a progress-bar allowing you to follow the progression of the calculations. Depending on the size of the dataset, the complexity of the model and the use of the cross-validation option, the time required to perform all calculations can be more or less long.

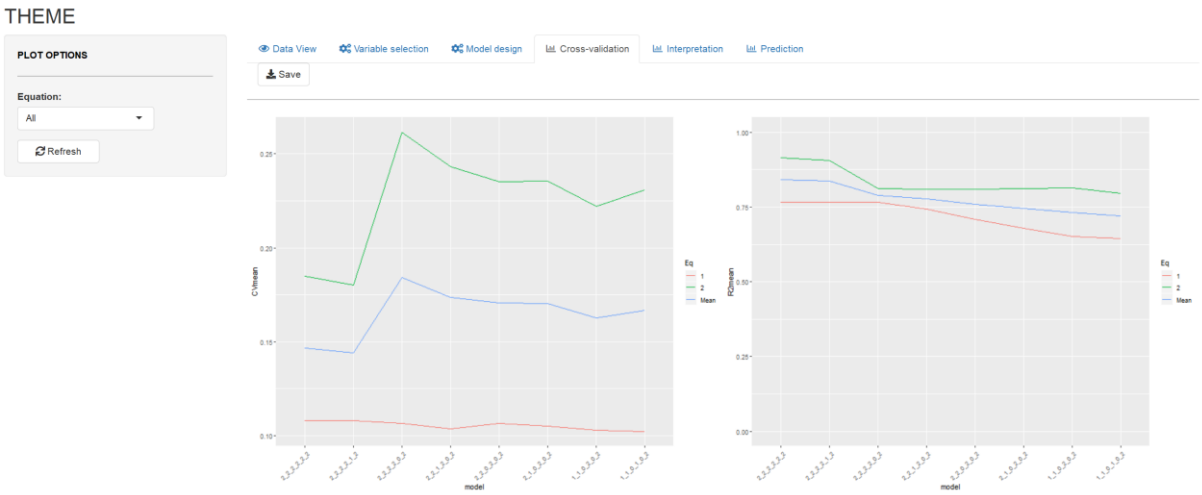
When all progress-bars vanish from the main window, the calculations are complete and the you can move to the graphical representations.

Step 4: Graphical representation

Three different graphical representations are proposed to the user for interpreting the THEME outputs. The graphical representations are available in the Cross-validation, Interpretation and Prediction tabs which share the logo  . A Save button is available on the top left corner of each representation allowing you to save the plots.

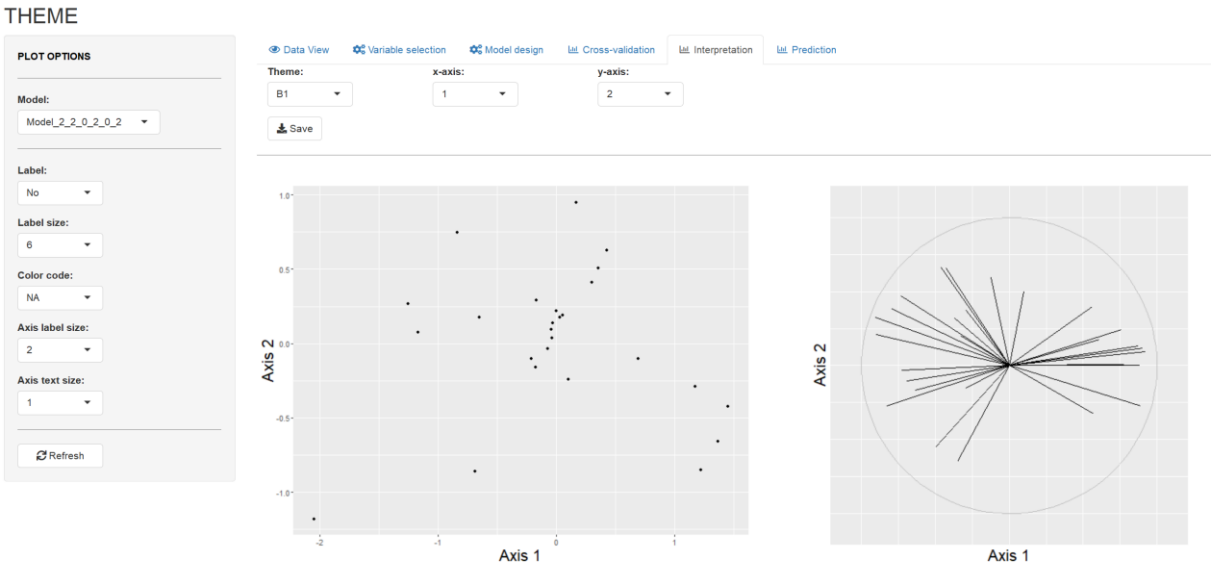
Cross-validation

Click on the "**Cross-validation**" tab. If the option has been selected, the cross-validation error and cross-validation R^2 can be plotted for the whole equation system, or for each equation separately, according to the selection in the panel control.



Interpretation

Click on the "**Interpretation**" tab to graph the plots of individuals and variables. The controls at the top of the window allow the user to choose the block and the axis to graph. In the control panel, the user can choose options (Label, label Size, axis label size, axis text size) to tune the representations for the selected model (note that two variables in at least one theme are required to make a plot). A color code can be used to highlight individuals when some categorical variables are present in the calibration set loaded by the user and detected by THEME.



Prediction

Click on the "**Prediction**" tab to graph the prediction plots for each variable in a dependent theme. The controls at the top of the window allow the user to choose the equation and the variable to represent. The default option "All" allows to display the predictions of all the variables of the dependent theme in the same window.